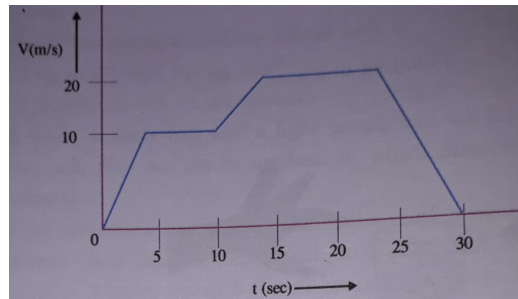


**GURU GOBIND SINGH PUBLIC SCHOOL**  
**SECTOR 5/B, BOKARO STEEL CITY**  
**PRE HALF YEARLY ASSIGNMENT (LEVEL-2) 2018**

Std.: IX

Subject: Physics

1. Can an object be accelerated if it is moving with a constant speed? Justify your answer with an example.
2. a) Draw velocity-time graph for a uniformly accelerated objects. Using velocity-time graph, derive  $s = ut + \frac{1}{2} at^2$   
b) Why does the recoil of a heavy gun on firing not as strong as of a light gun using the same cartridges?
3. Calculate the height above the surface of earth at which the value of acceleration due to gravity is half of what is on the surface.
4. a) Derive the law of conservation of linear momentum.  
b) Total momentum of two bodies remains unchanged before and after collisions. Justify this statement.
5. What do you understand by free fall? Derive an expression for the acceleration due to gravity. Write the factors on which 'acceleration due to gravity' depends.
6. Give reasons.  
a) The mass is constant everywhere where as weight keeps changing.  
b) The value of 'g' keeps changing as we move away from the earth whereas value of 'G' remain constant all over the universe.
7. Suppose a planet exists whose mass and radius both are half of those of earth. Calculate acceleration due to gravity on the surface of this planet. 'g' on the surface of the earth =  $9.8 \text{ m/s}^2$ .
8. a) Draw a velocity-time graph for an object in uniform motion. Show that the area under the velocity-time graph gives the displacement of the object in the given time interval.  
b) What is the numerical ratio of average velocity to average speed of an object when it is moving along a straight path?



9. From the following graph of an object of mass 20 kg. Answer the questions that follows.
  - a) Acceleration between 10 – 15 seconds.
  - b) What is the force applied from 0 – 5 seconds?
  - c) Momentum after 10 seconds.
  - d) Nature of force between 25 – 30 seconds.
  - e) Magnitude of force between 15 – 25 seconds.
10. A body of mass 'm' is moving with a velocity 'u'. When a force is applied on it for time 't', its velocity increases to 'v'. Write expressions for:
  - a) Initial and final momentum.
  - b) Change in momentum.

c) Rate of change in momentum.  
Also write S.I. unit for each.

### **Subject: Chemistry**

1. You are provided with a mixture of naphthalene and ammonium chloride by your teacher. Suggest an activity to separate them with well labelled diagram.
2. You want to wear your favorite shirt to party, but the problem is that it is still wet after a wash. What step would you take to dry faster?
3. Name two factors which influence the state of matter.
4. What is the reason for running cold water through condenser from lower side to upper side in distillation process?
5.  $2.5 \text{ cm}^3$  of alcohol are mixed with 75g of water. Calculate the concentration of this solution.
6. What is the mass in gram of one molecule of caffeine ( $\text{C}_8\text{H}_{10}\text{N}_4\text{O}_2$ )?
7. How will you separate mixture of sugar and salt?
8. A person spent ten thousand rupees per second. How many years will he take to spent one mole of rupee?
9. Why was oxygen-16 replaced by carbon-12 as the reference for measuring atomic mass?
10. Calculate the percentage of carbon in  $\text{CaCO}_3$ ?

### **Subject: Biology**

1. Differentiate between a prokaryotic cell and a eukaryotic cell with examples.
2. (a) Name the organelle which provides turgidity and rigidity to the plant cell. Name any two substances which are present in it.  
(b) How are they useful in unicellular organisms?
3. (a) State the constituents of phloem.  
(b) How does cork act as a protective tissue?
4. Why Italian bee variety is commonly used for commercial honey production? Name the Italian bee (Scientific name)

5. Define manures. What are its three different kinds ? state two limitations of manures.

6. (a) What is composite fish culture system?

(b) Mention one merit and one demerit of this system.

7. Identify the type of tissue in the following: \_

Skin, bark of tree, bone, lining of kidney tubule, vascular bundle

8. Differentiate between

(a) Aerenchyma & Chlorenchyma

(b) Bone and cartilage

(c) Ligaments and Tendons

(d) Parenchyma and Sclerenchyma

(e) Rough E R and Smooth E R

9. What may happen to the size of the cell if it is placed in such solutions which vary in their concentration.

(i) When placed in Hypotonic solution.

(ii) When placed in Hypertonic solution.

(iii) When placed in Isotonic solution.

10. (a) Draw a diagram to show the location of different meristematic tissues in plant body.

(b) State one function of each.